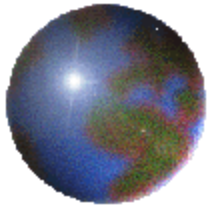




3D/4D Modeling and Visualization



Caltrans



Surveys



3D/4D Modeling and Visualization

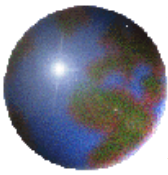
Today's Messages

- ✚ Early Request of High Accuracy Survey Data
- ✚ The Future is Here Today – Laser Scanning Survey Data for 3D Applications



Early Request of High Accuracy Survey Data

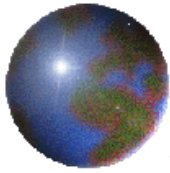
- ✚ Early Request with All Customer Agreement
- ✚ Field Review of Job Site
- ✚ Removal or Minimization of Surveys on the Critical Path
- ✚ Improved Decision Making by all Customers by Having High Accuracy Survey Data Early
- ✚ Steve Kala – Surveys Coordinator



Steve Kala



Steve.Kala@dot.ca.gov



3D/4D Modeling and Visualization

The Future is Here Today



3D/4D Modeling and Visualization and Building Information Modeling

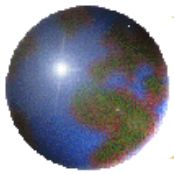
BIM is the process of generating and managing data during a project's life cycle. Typically it uses three-dimensional data related to a time component (4D) as well as other geospatial data to increase productivity during design and construction. The process produces a model, which encompasses project geometry, spatial relationships, geographic information, quantities, and properties of project components.



3D/4D/BIM – D4 Surveys

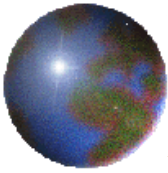
Core Value: Innovation

- ✚ Terrestrial Laser Scanning
- ✚ Mobile Laser Scanning
- ✚ Automated Machine Guidance Systems



Stationary Laser Scanner



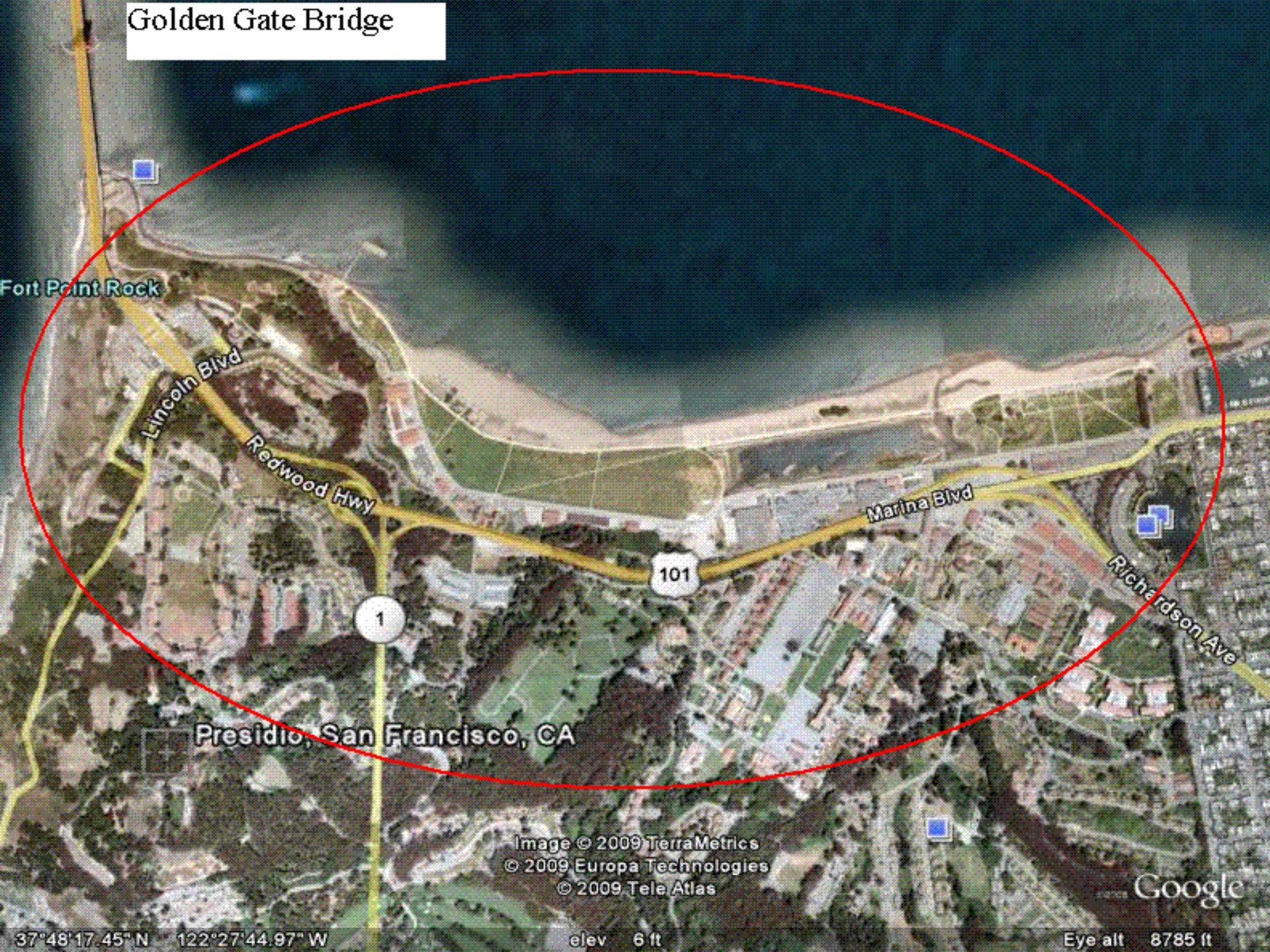


Chevron
Pipes

Palace of
Fine Arts



Golden Gate Bridge



Fort Point Rock

Lincoln Blvd

Redwood Hwy

Marina Blvd

Richardson Ave

Presidio, San Francisco, CA

Image © 2009 TerraMetrics
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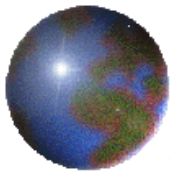
Google

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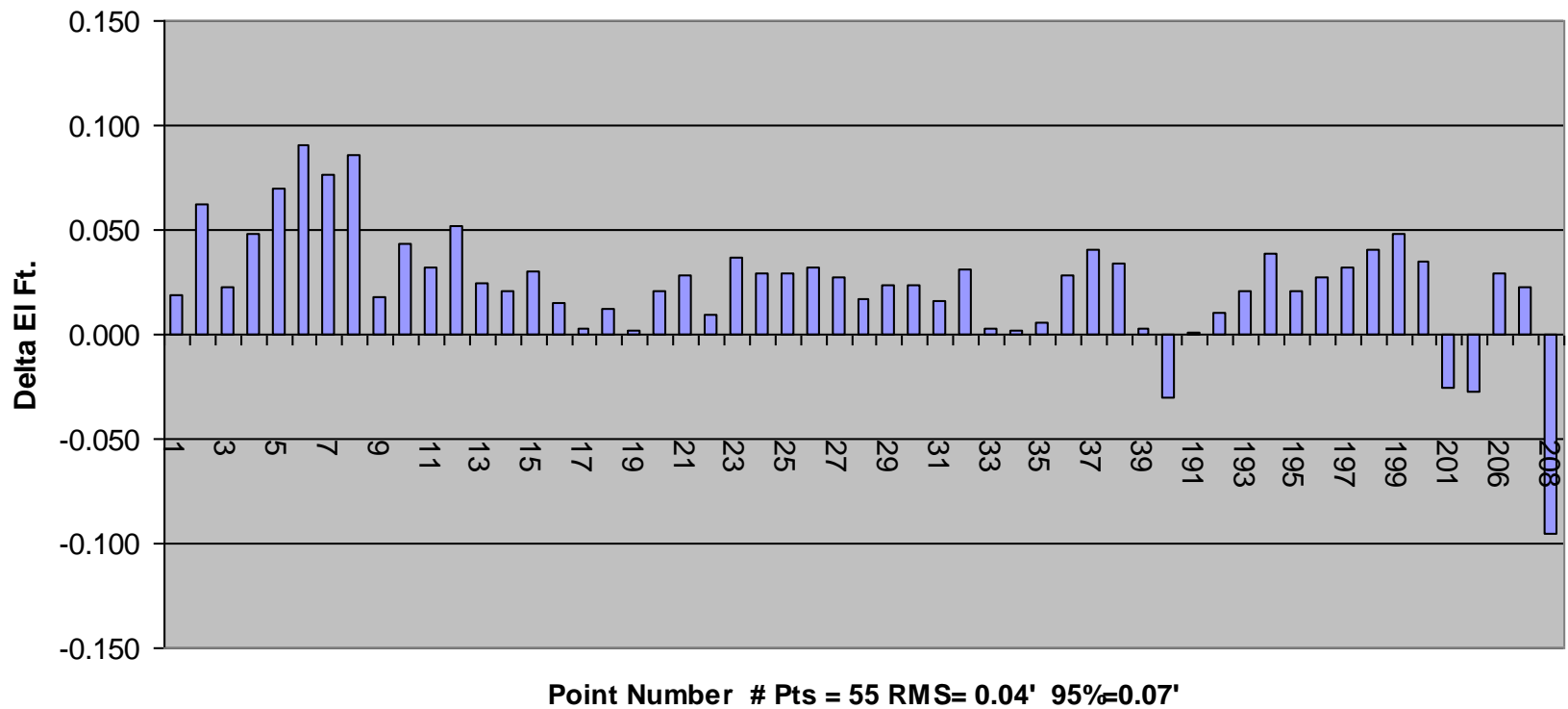
elev 6 ft

Eye alt 8785 ft





WH Pacific Mobile Data Comparison CK Pt.-DTM



Cost/Benefit Analysis

Guidelines



Building Information Modeling

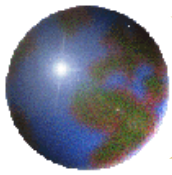
✚ Example 1

✚ Example 2



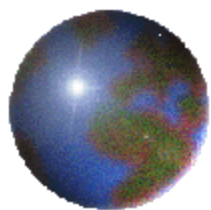
3D/4D/BIM Benefits

- ✚ Constructability Review
- ✚ Quantity Tracking
- ✚ As-built Documentation
- ✚ Public Relations – Animations
- ✚ Schedule Optimization
- ✚ Improved Change Management
- ✚ Clash Detection



Machine Guidance





Questions